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TITLE: SURFACE CHEMISTRY OF TOBACCO LEAVES DURING MATURATION AND CURING WITH PARTICULAR EMPHASIS ON TRICHOMES

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ABSTRACT: The contribution of trichome components to flavor and aroma of tobacco is difficult to determine because of the difficulty of obtaining sufficient quantities of trichomes. The objectives of the investigations were to collect trichome exudate for evaluation of chemical changes associated only with the trichomes and for determining interactions of the exudate with the surface chemistry of the tobacco leaf. Exudate from leaves of NC 2326 was collected onto sterile cheesecloth at harvest, at the end of yellowing, and at the end of curing. The cheesecloths were managed similarly to leaves during curing. At the same time, leaves of NC 2326 were flue-cured for surface extraction. One hundred leaves from green, half-yellow, yellow, fixed, and cured stages were chloroform extracted for 30 seconds and the extract prepared for GLC. The cheesecloth material was sampled at green, yellow, and cured stages and extracted similarly to the leaf samples for comparison. Using GC/MS analysis, 20 compounds were identified from prepared samples. The effect of curing and quantitative changes on the profiles will be discussed.

REVIEW: A cheesecloth-coated roller was used to collect large quantities of trichome exudate at harvest, at the end of yellowing, and at the end of curing. The cheesecloths, which only contained trichome exudate, were flue-cured and subjected to study for chemical changes of trichome components during maturation and curing. A GC/MS comparison of the chloroform extracts of the cheesecloth materials and the tobacco leaves led the authors to conclude that the duvanes, which were the major surface chemicals, were peaked at maturation and then deteriorated during curing. In addition, the authors also claimed the forming of a number of oxygenated duvanes after curing. I found it difficult to believe that the authors were able to identify twenty different duvanes by using only GC/MS. I believe that without authentic samples it is impossible to use GC/MS to characterize duvane diterpenoids and especially to place the functional groups in the duvane ring system.

-Reviewed by H. Sun